



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D212-664-101
Job Sheet 196363



Part No: D212-664-101

Job Qty: 1 pcs

Part Name: Fwd Crosstube - High



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/12/19

Job Tracking No:

Due Date: 10/12/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D212-664-141 REV E/ IIN-D212-664 REV.J IPP Rev:E 04.02.16 Reformat KJ/DS IPP Rev:F 06-03-29 Remove
Comments on Pick List JLM IPP Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 11.04.26 inspection strip ecn 11-
549 EC verf by:DD IPP REV:I 14.05.27 AS PER ECN 14-570 DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
120	Crosstubes - Bend - 1	1 pcs		10/12/19	0.50	1.00	Crosstubes - Bend		
130	QC 15	1 pcs		10/12/19	0.00	0.00	QC 15 - 12		
							QC 15 - 3		
							QC 15 - 47		
							QC 15 - 49		
							QC 15 - 58		
							QC 15 - 9		
							QC 15 - 68		
140	Crosstubes - 2 - B4B	1 pcs		10/12/19	0.00	1.00	Crosstubes - 1 - B4B		
							Crosstubes - 2 - B4B		
							Crosstubes - 3 - B4B		
							Crosstubes - 4 - B4B		
150	Crosstubes - 3 - B4B	1 pcs		10/12/19	0.00	0.50	Crosstubes - 1 - B4B		
							Crosstubes - 2 - B4B		
							Crosstubes - 3 - B4B		
							Crosstubes - 4 - B4B		
160	QC 7	1 pcs		10/12/19	0.00	0.00	QC 7 - 10		
							QC 7 - 13		
							QC 7 - 14		
							QC 7 - 15		
							QC 7 - 17		
							QC 7 - 18		
							QC 7 - 19		
							QC 7 - 2		
							QC 7 - 28		
							QC 7 - 3		
							QC 7 - 30		
							QC 7 - 34		
							QC 7 - 36		



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Email: sales@dartaero.com
www.dartaero.com

Container No: S189956



Part: D212-664-101

Job No: 196363

Serial No/Batch: s189956

Revision: E/J

Inspector:

Date:

Instructions: TC STC SH01-9 Issue 3, EASA STC SR01298NY 09/01/08, EASA STC

Plex 10/4/19 1:50 PM dart.lacelle.linda

				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
				QC 7 - 24	
				QC 7 - 43	
165	QC 5	1 pcs	10/12/19	0.00 0.00	QC 5 - 10
					QC 5 - 12
					QC 5 - 17
					QC 5 - 18
					QC 5 - 19
					QC 5 - 22
					QC 5 - 24
					QC 5 - 3
					QC 5 - 43
					QC 5 - 49
					QC 5 - 51
					QC 5 - 58
					QC 5 - 68
					QC 5 - 9
					QC 5 - 50
					QC 5 - 30
					QC 5 - 40
170	Outsource - 2 - NDT per QSI038	1 pcs	10/12/19		SKY002-VC
180	Packaging 2-1 - Receive - B4B	1 pcs	10/12/19	0.00 0.00	Packaging 2 - 1 - B4B
					Packaging 2 - 2 - B4B
					Packaging 2 - 3 - B4B
					Packaging 2 - 5 - B4B
					Packaging 2 - 4 - B4B
					Packaging 2 - 6 - B4B
					Packaging 2 - 7 - B4B
					Packaging 2 - 8 - B4B
					Packaging 2 - 9 - B4B
					Packaging 2 - 10 - B4B
					Packaging 2 - 11 - B4B
					Packaging 2 - 12 - B4B
					Packaging 2 - 13 - B4B
					Packaging 2 - 14 - B4B
					Packaging 2 - 15 - B4B
					Packaging 2 - 16 - B4B
					Packaging 2 - 17 - B4B
					Packaging 2 - 18 - B4B

Handwritten:
 K/A
 see attached

				Packaging 2 - 19 - B4B	
				Packaging 2 - 20 - B4B	
				Packaging 2 - 21 - B4B	
				Packaging 2 - 22 - B4B	
				Packaging 2 - 23 - B4B	
				Packaging 2 - 24 - B4B	
				Packaging 2 - 25 - B4B	
				Packaging 2 - 26 - B4B	
				Packaging 2 - 27 - B4B	
				Packaging 2 - 28 - B4B	
				Packaging 2 - 29 - B4B	
				Packaging 2 - 30 - B4B	
				Packaging 2 - 31 - B4B	
				Packaging 2 - 32 - B4B	
				Packaging 2 - 33 - B4B	
				Packaging 2 - 34 - B4B	
				Packaging 2 - 35 - B4B	
				Packaging 2 - 36 - B4B	
190 QC 5	1 pcs	10/12/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
200 Spray Paint - 2 - B4B	1 pcs	10/12/19	0.00 0.25	Spray Paint - 1 - B4B	
				Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
210 QC 14	1 pcs	10/12/19	0.00 0.00	QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	
				QC 14 - 51	

				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	
				QC 14 - 40	
				QC 14 - 19	
				QC 14 - 43	
				QC 14 - 24	
220	Crosstubes - 4 - B4B	1 pcs	10/12/19	0.00 1.69	Crosstubes - 1 - B4B
					Crosstubes - 2 - B4B
					Crosstubes - 3 - B4B
					Crosstubes - 4 - B4B
230	QC 5	1 pcs	10/12/19	0.00 0.00	QC 5 - 10
					QC 5 - 12
					QC 5 - 17
					QC 5 - 18
					QC 5 - 19
					QC 5 - 22
					QC 5 - 24
					QC 5 - 3
					QC 5 - 43
					QC 5 - 49
					QC 5 - 51
					QC 5 - 58
					QC 5 - 68
					QC 5 - 9
					QC 5 - 50
					QC 5 - 30
					QC 5 - 40
240	Packaging 1-1 - Pick Kit - B4B	1 pcs	10/12/19	0.00 0.00	Packaging 1 - 1 - B4B
					Packaging 1 - 2 - B4B
					Packaging 1 - 3 - B4B
					Packaging 1 - 4 - B4B
					Packaging 1 - 5 - B4B
					Packaging 1 - 6 - B4B
					Packaging 1 - 7 - B4B
					Packaging 1 - 8 - B4B
					Packaging 1 - 9 - B4B
					Packaging 1 - 10 - B4B
					Packaging 1 - 11 - B4B
					Packaging 1 - 12 - B4B
					Packaging 1 - 13 - B4B
					Packaging 1 - 14 - B4B
					Packaging 1 - 15 - B4B
					Packaging 1 - 16 - B4B
					Packaging 1 - 17 - B4B
					Packaging 1 - 18 - B4B
					Packaging 1 - 19 - B4B
					Packaging 1 - 20 - B4B
					Packaging 1 - 21 -

					B4B	
					Packaging 1 - 22 - B4B	
					Packaging 1 - 23 - B4B	
					Packaging 1 - 24 - B4B	
					Packaging 1 - 25 - B4B	
					Packaging 1 - 26 - B4B	
					Packaging 1 - 27 - B4B	
					Packaging 1 - 28 - B4B	
					Packaging 1 - 29 - B4B	
					Packaging 1 - 30 - B4B	
					Packaging 1 - 31 - B4B	
					Packaging 1 - 32 - B4B	
					Packaging 1 - 33 - B4B	
					Packaging 1 - 34 - B4B	
					Packaging 1 - 35 - B4B	
					Packaging 1 - 36 - B4B	
241 Rework - 6 - B4B	1 pcs	10/12/19	0.00 0.00		Rework - 1 - B4B	19-10-25
242 Rework - 5 - B4B	1 pcs	10/12/19	0.00 0.00		QC 8 - 12	19/10/31
243 Rework - 2 - B4B	1 pcs	10/12/19	0.00 0.00		Crosstubes - 1 - B4B	DAS 41 NOV 08 2019
245 Rework - 3 - B4B	1 pcs	10/12/19	0.00 0.00		Crosstubes - 1 - B4B	DAS 41 NOV 08 2019
247 Rework - 4 - B4B	1 pcs	10/12/19	0.00 0.00		Crosstubes - 1 - B4B	DAS 41 NOV 08 2019
250 QC 4-5	1 pcs	10/12/19	0.00 0.00		QC 4 - 28	9-89
					QC 4 - 58	
					QC 4 - 69	
					QC 4 - 9	
					QC 4 - 46	DAS
					QC 4 - 68	NOV 11 2019 68
					QC 4 - 72	9-89
					QC 4 - 74	
260 Packaging 3-1 - Stock - B4B	1 pcs	10/12/19	0.00 0.00		Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 -	

					B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
265	DC - 1 - B4B	1	10/12/19	0.00 0.00	DC - 1 - B4B	
		pcs			DC - 2 - B4B	
270	QC 21 - FG	1	10/12/19	0.00 0.00	QC 21 - FG - 21	
		pcs			QC 21 - FG - 70	
					QC 21 - FG - 53	

Part Op 120 - Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

Descriptions: 130 - (QC15- Crosstube Dimensional Check)

140 - "1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549,using drill table DT8577, set-up towers in hole #7 as per QSI 10 2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141"

150 - HandFinish5 (Crosstubes Chemical Conversion) ***IMMEDIATELY AFTER GRINDING***

160 - (QC7-Inspect Chemical Conversion Coat)

165 - QC5- Inspect part completeness to step on W/O)

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as

per ASTM 1417 Level 2 Attach copy of NDT results to work order

180 - (Receive & Inspect for Damage & Mat'l Certs) Ensure copy of NDT results attached to work order.

190 - (QC5- Inspect part completeness to step on W/O) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***
Inspect for damage & ensure results are as per Dwg D212-664-141

200 - (Spray Paint / NDT Room) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside & outside crosstube as per QSI 005 4.2 BATCH: _____ 2- After painting remove masking and apply matte clear coat per QSI005 4.2 3- MASK UNDERSIDE OF CROSSTUBE AS SHOWN ON DWG BEFORE PAINTING 4 -Paint Outside of Tube as per Dart QSI 005 4.2

210 - (QC14- Inspect Spray Paint) Then, Wrap in plastic bag to protect from scratches

220 - *****LAY DOWN CROSSTUBE ON TABLE AND PUT DT10302 PINS IN SADDLE HOLE FACING UP, USE HOLE IN TAPE MESURE TO PUT IN PINS FOR LOCATING CENTER OF CROSSTUBE. ***** 1- Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2- Install supports with PROSEAL 890 per D212-664-141 and QSI 015 A/R Proseal 890 Batch: 5229888 EXP: 6/20 3- Install clamps PROSEAL CURE TIME 72 HOURS: Start: 19-11-8 Finish: 19-11-11 3- Install clamps with rubber cushion (ENSURE CLAMPS ARE INSTALL ON TOP SIDE OF CROSSTUBE) using DT9565 as per Dwg D212-664-141. ***Torque all clamps to 80-100 IN-LBS.***

230 - (QC5- Inspect part completeness to step on W/O) ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

240 - (Pick Kit)

242 - QC 8

247 - HAAS

250 - QC4- 100% Inspect kits for completeness) ***VERIFY BY _____ BATCH # TO MATCH W/O

260 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP D212-664-101 Location : FG094

265 - Photocopy bluefile and create labels as per PPP D212-664-101 CHG007

270 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D212-664-101TRN	Crosstube Turning Detail	1 pcs (1 ea)	120-Crosstubes - Bend - 1	
D2893-1	Support	2 pcs (2 ea)	220-Crosstubes - 4 - B4B	<u>5229888</u>
D3595-063-450	Rubber Cushion 0.63" Wide X 4.50" Long	4 pcs (4 ea)	220-Crosstubes - 4 - B4B	<u>5229888</u>
MS21920-25	Clamp	4 Ea (4 ea)	220-Crosstubes - 4 - B4B	<u>5203212</u>
AN6-35A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	
AN6-36A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	
D3428-1	Placard	1 pcs (1 ea)	240-Packaging 1-1 - Pick Kit - B4B	
MS21042L6	Nut	6 Ea (6 ea)	240-Packaging 1-1 - Pick Kit - B4B	
NAS1149D0663J	Washer	18 Ea (18 ea)	240-Packaging 1-1 - Pick Kit - B4B	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
120-Crosstubes - Bend - 1	D212-664-101TRN	1	5	0
220-Crosstubes - 4 - B4B	D2893-1	2	17	0
	D3595-063-450	4	55	0
	MS21920-25	4	91	0
	AN6-35A	4	19	0
	AN6-36A	4	7	0
	D3428-1	1	5	0
	MS21042L6	6	112	0
	NAS1149D0663J	18	135	0

Part Specifications

Specifications could not be found.

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Part Name: Fwd Crosstube - High



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Status: New

Priority: Medium

Job Created: 6/12/19

Job Tracking No:

Due Date: 7/12/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D212-664-141 REV E/ IIN-D212-664 REV.J IPP Rev:E 04.02.16 Reformat KJ/DS IPP Rev:F 06-03-29 Remove
Comments on Pick List JLM IPP Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 11.04.26 inspection strip ecn 11-
549 EC verf by:DD IPP REV:I 14.05.27 AS PER ECN 14-570 DD VERF:JLM

Ship Via:

Bill of Materials

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Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
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120	Crosstubes - Bend - 1	1 pcs	7/12/19	7/12/19	0.50	1.00	Crosstubes - Bend	GP 19-06-13.
130	QC 15	1 pcs	7/12/19	7/12/19	0.00	0.00	QC 15 - 12	
							QC 15 - 3	DAS
							QC 15 - 47	47 JW
							QC 15 - 49	9-89
							QC 15 - 58	
							QC 15 - 9	
							QC 15 - 68	
140	Crosstubes - 2 - B4B	1 pcs	7/12/19	7/12/19	0.00	1.00	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	GP 19-06-17
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	
150	Crosstubes - 3 - B4B	1 pcs	7/12/19	7/12/19	0.00	0.50	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	
							Crosstubes - 3 - B4B	GP 19-06-19.
							Crosstubes - 4 - B4B	
160	QC 7	1 pcs	7/12/19	7/12/19	0.00	0.00	QC 7 - 10	
							QC 7 - 13	
							QC 7 - 14	
							QC 7 - 15	
							QC 7 - 17	
							QC 7 - 18	
							QC 7 - 19	
							QC 7 - 2	
							QC 7 - 28	
							QC 7 - 3	
							QC 7 - 30	
							QC 7 - 34	
							QC 7 - 36	
							QC 7 - 37	



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Part: D212-664-101

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Serial No/Batch: S189956

Revision: E/J

Inspector:

Exp Date:

Instructions: TC STC SH01-9 Issue 305AA-87, SR01298N

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				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	JUN 25 2019 ^{DAS} 68
				QC 7 - 50	9-89
				QC 7 - 67	
				QC 7 - 40	
				QC 7 - 24	
				QC 7 - 43	
165 QC 5	1 pcs	7/12/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	JUN 25 2019 ^{DAS} 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
170 Outsource - 2 - NDT per QSI038	1 pcs	7/12/19		SKY002-VC	2019-06-26
180 Packaging 2-1 - Receive - B4B	1 pcs	7/12/19	0.00 0.00	Packaging 2 - 1 - B4B	
				Packaging 2 - 2 - B4B	
				Packaging 2 - 3 - B4B	
				Packaging 2 - 5 - B4B	
				Packaging 2 - 4 - B4B	JUN 27 2019
				Packaging 2 - 6 - B4B	
				Packaging 2 - 7 - B4B	
				Packaging 2 - 8 - B4B	
				Packaging 2 - 9 - B4B	
				Packaging 2 - 10 - B4B	
				Packaging 2 - 11 - B4B	
				Packaging 2 - 12 - B4B	
				Packaging 2 - 13 - B4B	
				Packaging 2 - 14 - B4B	
				Packaging 2 - 15 - B4B	
				Packaging 2 - 16 - B4B	
				Packaging 2 - 17 - B4B	
				Packaging 2 - 18 - B4B	
				Packaging 2 - 19 - B4B	
				Packaging 2 - 20 - B4B	
				Packaging 2 - 21 - B4B	
				Packaging 2 - 22 - B4B	
				Packaging 2 - 23 - B4B	
				Packaging 2 - 24 - B4B	
				Packaging 2 - 25 - B4B	
				Packaging 2 - 26 - B4B	

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190 QC 5	1 pcs	7/12/19	0.00 0.00	Packaging 2 - 27 - B4B	
				Packaging 2 - 28 - B4B	
				Packaging 2 - 29 - B4B	
				Packaging 2 - 30 - B4B	
				Packaging 2 - 31 - B4B	
				Packaging 2 - 32 - B4B	
				Packaging 2 - 33 - B4B	
				Packaging 2 - 34 - B4B	
				Packaging 2 - 35 - B4B	
				Packaging 2 - 36 - B4B	
				QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
200 Spray Paint - 2 - B4B	1 pcs	7/12/19	0.00 0.25	QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	DAS JUN 27 2019 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	
210 QC 14	1 pcs	7/12/19	0.00 0.00	QC 5 - 40	
				Spray Paint - 1 - B4B	RD 19-6-28
				Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
220 Crosstubes - 4 - B4B	1 pcs	7/12/19	0.00 1.69	QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	AS 19-6-29
				QC 14 - 51	
				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	
				QC 14 - 40	
				QC 14 - 19	
				QC 14 - 43	
				QC 14 - 24	
230 QC 5	1 pcs	7/12/19	0.00 0.00	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	AS 19-6-29
				QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	

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				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	DAS
				Packaging 3 - 25 - B4B	78 NOV 20 2019
				Packaging 3 - 26 - B4B	9-89
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	DAS
265 DC - 1 - B4B	1 pcs	7/12/19	0.00 0.00	DC - 1 - B4B	21 NOV 20 2019
				DC - 2 - B4B	
270 QC 21 - FG	1 pcs	7/12/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	21 NOV 20 2019
				QC 21 - FG - 53	

Part Op 120 - Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

Descriptions: 130 - (QC15- Crosstube Dimensional Check)

140 - "1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549, using drill table DT8577, set-up towers in hole #7 as per QSI 10 2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & inspect for surface damage. Repair damage within limits as per Dwg D212-664-141"

150 - HandFinish5 (Crosstubes Chemical Conversion) ***IMMEDIATELY AFTER GRINDING***

160 - (QC7-Inspect Chemical Conversion Coat)

165 - QC5- Inspect part completeness to step on W/O)

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

180 - (Receive & Inspect for Damage & Mat'l Certs) Ensure copy of NDT results attached to work order.

190 - (QC5- Inspect part completeness to step on W/O) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D212-664-141

200 - (Spray Paint / NDT Room) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside & outside crosstube as per QSI 005 4.2 BATCH: 8154137 2- After painting remove masking and apply matte clear coat per QSI005 4.2 3- MASK UNDERSIDE OF CROSSTUBE AS SHOWN ON DWG BEFORE PAINTING 4 -Paint Outside of Tube as per Dart QSI 005 4.2 818693

210 - (QC14- Inspect Spray Paint) Then, Wrap in plastic bag to protect from scratches

220 - *****LAY DOWN CROSSTUBE ON TABLE AND PUT DT10302 PINS IN SADDLE HOLE FACING UP, USE HOLE IN TAPE MESURE TO PUT IN PINS FOR LOCATING CENTER OF CROSSTUBE. ***** 1- Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2- Install supports with Proseal 890 per D212-664-141 and QSI 015 A/R Proseal 890 Batch: 5176610 EXP: 10/19 PROSEAL CURE TIME 72 HOURS: Start: 19-6-29 Finish: 19-7-3 3- Install clamps with rubber cushion (ENSURE CLAMPS ARE INSTALL ON TOP SIDE OF CROSSTUBE) using DT9565 as per Dwg D212-664-141. ***Torque all clamps to 80-100 IN-LBS.***

230 - (QC5- Inspect part completeness to step on W/O) ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

240 - (Pick Kit)

250 - QC4- 100% Inspect kits for completeness) ***VERIFY BY _____ BATCH # TO MATCH W/O

260 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP D212-664-101 Location :

6/12/2019

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

FG094

265 - Photocopy bluefile and create labels as per PPP D212-664-101 CHG006

270 - (QC21- Final Inspection - Work Order Release)

507
Per ELN 19.8.19

010832

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D212-664-101TRN	Crosstube Turning Detail	1 pcs (1 ea)	120-Crosstubes - Bend - 1	5185068
D2893-1	Support - Rev D	2 pcs (2 ea)	220-Crosstubes - 4 - B4B	
D3595-063-450	Rubber Cushion 0.63" Wide X 4.50" Long	4 pcs (4 ea)	220-Crosstubes - 4 - B4B	
MS21920-25	Clamp	4 Ea (4 ea)	220-Crosstubes - 4 - B4B	
AN6-35A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	5184936
AN6-36A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	5152483
D3428-1	Placard	1 pcs (1 ea)	240-Packaging 1-1 - Pick Kit - B4B	5112841
MS21042L6	Nut	6 Ea (6 ea)	240-Packaging 1-1 - Pick Kit - B4B	5182056
NAS1149D0663J	Washer	18 Ea (18 ea)	240-Packaging 1-1 - Pick Kit - B4B	5167525

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
120-Crosstubes - Bend - 1	D212-664-101TRN	1	8	0
220-Crosstubes - 4 - B4B	D2893-1	2	13	0
	D3595-063-450	4	33	0
	MS21920-25	4	103	0
240-Packaging 1-1 - Pick Kit - B4B	AN6-35A	4	55	0
	AN6-36A	4	49	0
	D3428-1	1	24	0
	MS21042L6	6	373	0
	NAS1149D0663J	18	882	0

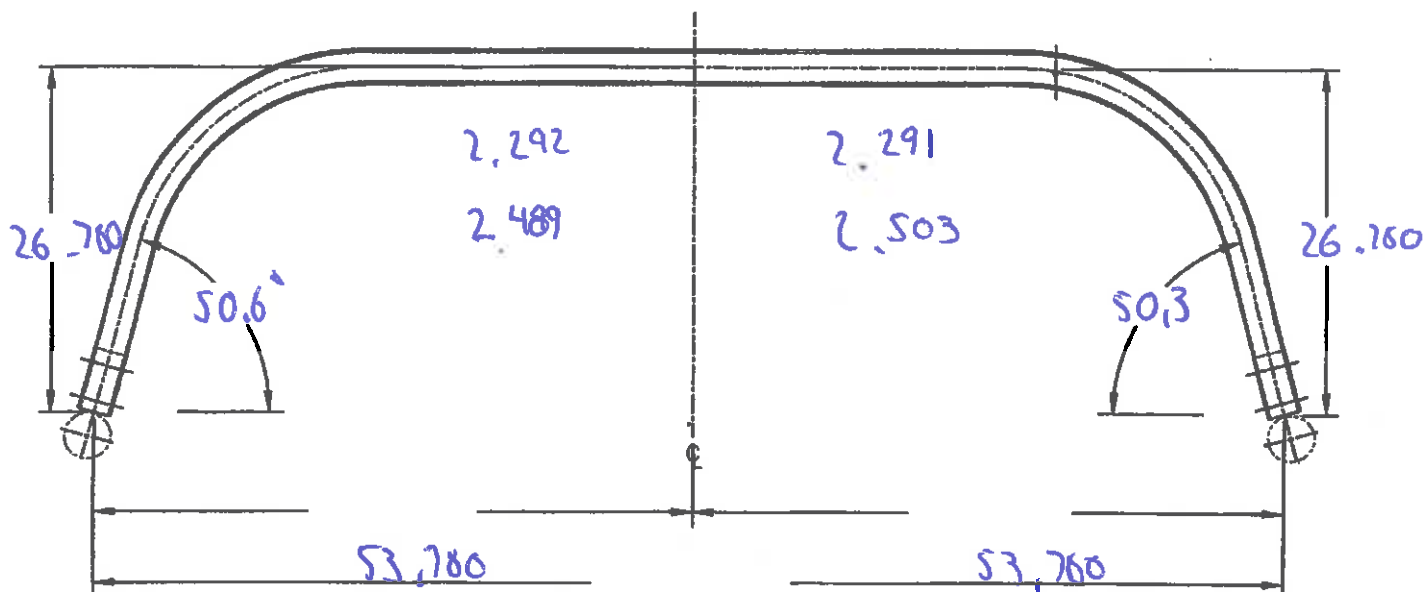
Part Specifications

Specifications could not be found.

Plex 6/12/19 10:54 AM Dart.lajeunesse.marie

DART AEROSPACE LTD		Work Order:	196363
Description: Crosstube High Fwd (205/212/412)		Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	26.67	27.17
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7
Bending Passes	3	--
Crushing	--	7.2%



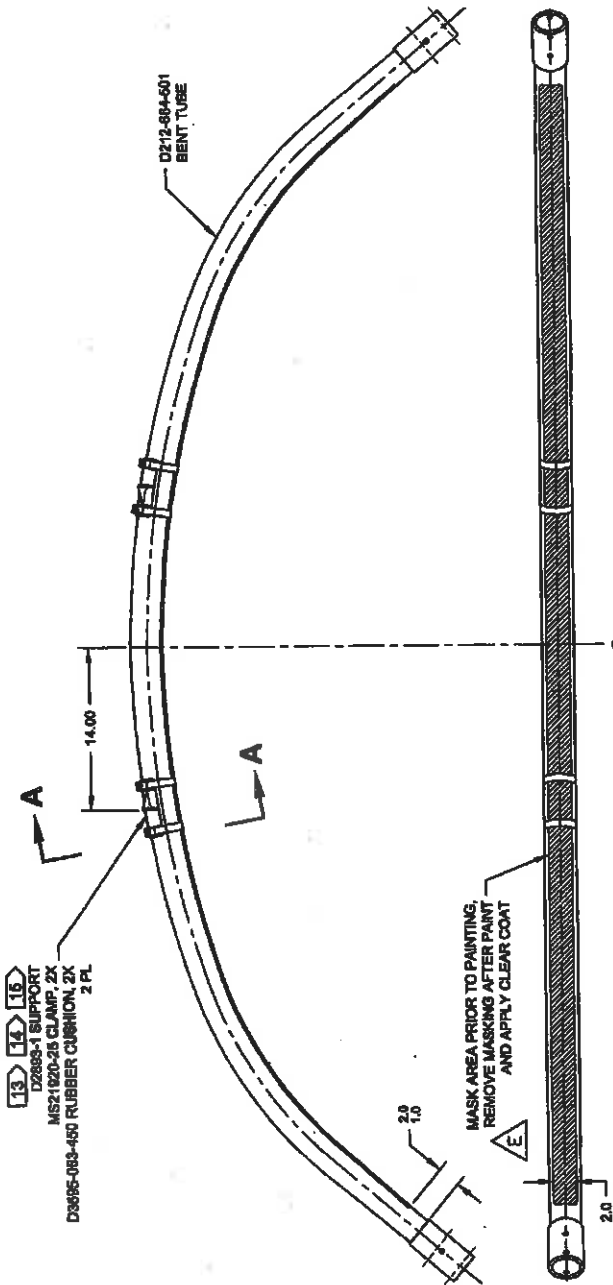
	Side A	Side B
Bending Passes	2	2
Crushing	4.1%	4.4%
Comments		

DAS
47

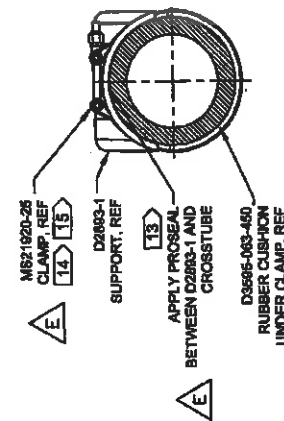
QC15 Inspection	9-89
Date	19-06-13

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	
C	10.04.01	Dwg Rev updated	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	
E	14.07.28	Revised max crushing %	KJ	
F	16.01.15	Revised Height min/max dimensions	KJ	

RELEASED
R 2014-05-26



**D212-884-141F-141F
ASSEMBLY DETAIL**



SECTION A-A
SCALE 4X

DESIGN	0	DART AEROSPACE LTD
DRAWN	0	HARRISBURG, ONTARIO, CANADA
CHECKED	0	DRAWING NO.
MFG. APPR.	0	D212-884-141
DE APPR.	0	TITLE
DATE	14.04.01	XTUBE ASSY (206/212/412 HI FWD) NTS
		SCALE
		REV. E SHEET 2 OF 6
		NTS

THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE PURPOSES SPECIFIED ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

1 2 3 4 5 6 7 8

13 14 15
 MS21820-25 CLAMP, 2X
 D3595-083-450 RUBBER CUSHION, 2X
 2 PL

E

D212-884-501
 BENT TUBE

13.75

G

G

2.0
 1.5

MASK AREA PRIOR TO PAINTING.
 REMOVE MASKING AFTER PAINT
 AND APPLY CLEAR COAT

E

2.0

C
 SYM

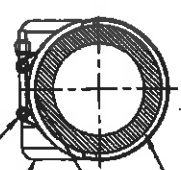
D212-884-141B
 ASSEMBLY DETAIL

MS21820-25
 CLAMP, REF
 14 15
 E

D5017-1
 SUPPORT, REF
 13
 E

APPLY PROBEAL
 BETWEEN D5017-1 AND
 CROSS TUBE
 E

D3595-083-450
 RUBBER CUSHION
 UNDER CLAMP, REF
 E



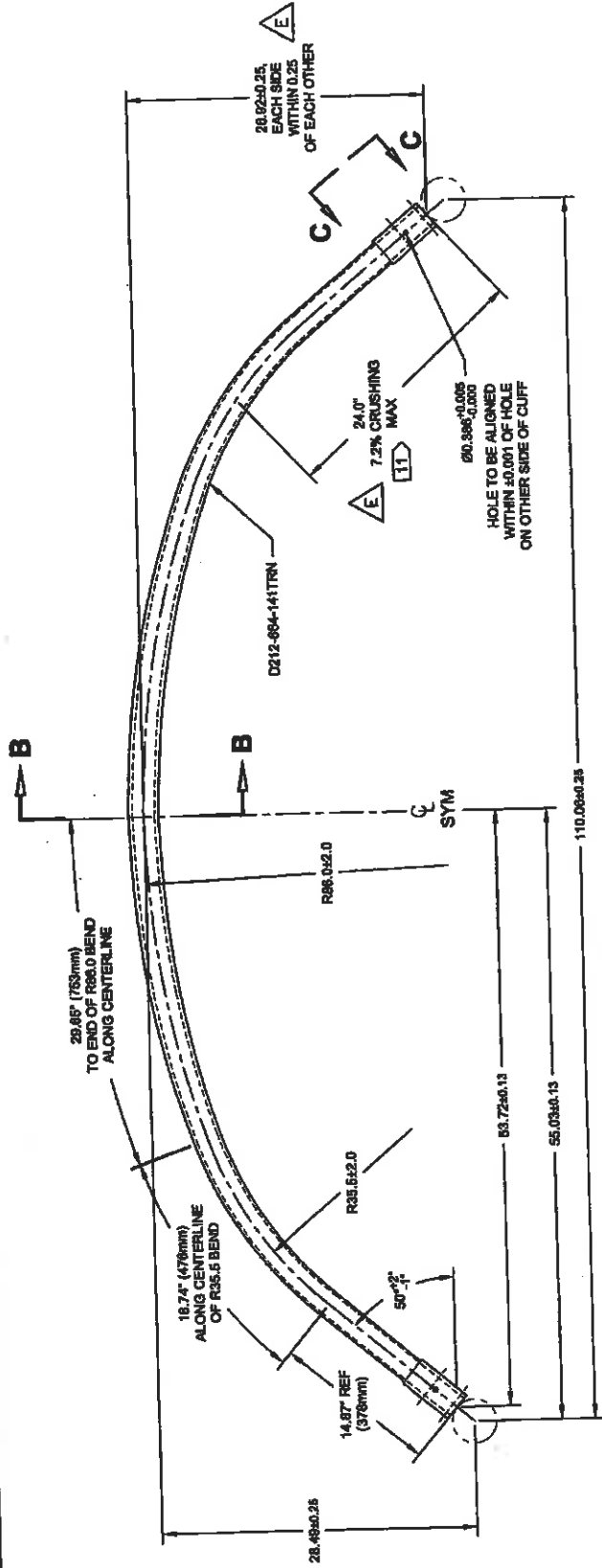
SECTION G-G
 SCALE 4X

RELEASED
 R 2014-05-26

DESIGN		DART AEROSPACE LTD	REV. E
DRAWN		HAWKSBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	SHEET 3 OF 6
MFG. APPR.		D212-884-141	SCALE
APPROVED		TITLE	NTS
DE APPR.		XTUBE ASSY (205/212/412 HI FWD)	
DATE	14.04.01		

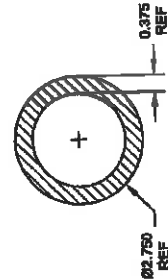
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RELEASED
2014-05-26

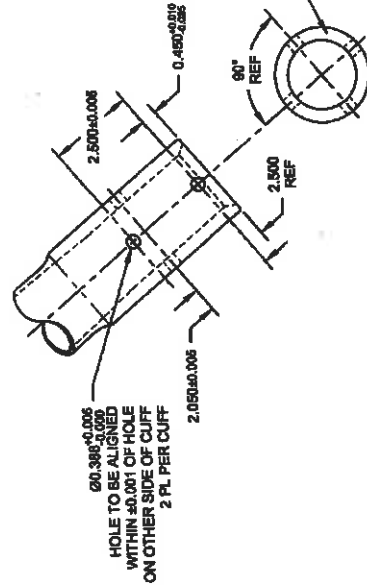


D212-684-501

BENDING AND DRILLING DETAIL



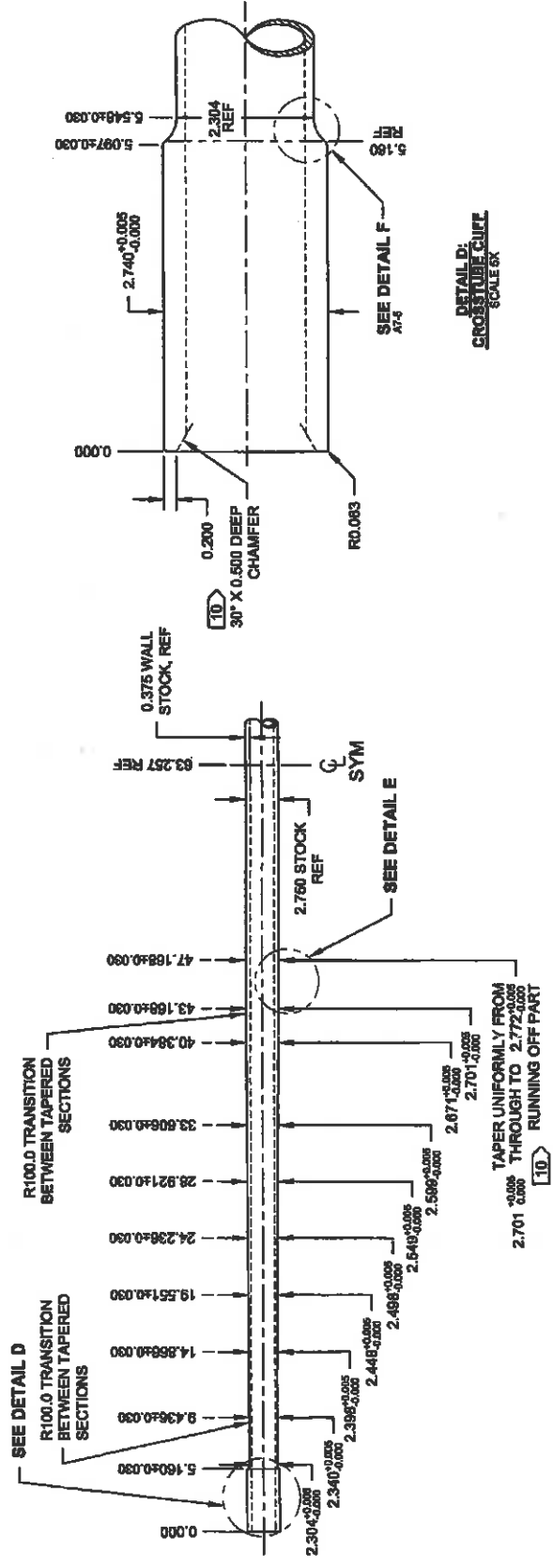
SECTION B-B
SCALE 4X



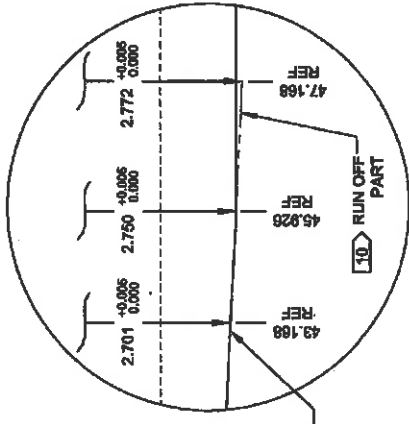
VIEW C-C: CUFF DETAIL
SCALE 3X

DESIGN	✓	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA REV. E SHEET 4 OF 6 DRAWING NO. D212-684-141 MFG. APPR. <i>[Signature]</i> APPROVED <i>[Signature]</i> DE APPR. <i>[Signature]</i> DATE 14.04.01	TITLE	XTURBE ASSY (205/212/412 H FWD)	SCALE	NTS
DRAWN	✓		BY DART AEROSPACE LTD	CAPTIVATED # 5500 BY DART AEROSPACE LTD NOT TO BE USED FOR REPRODUCTION WITHOUT WRITTEN PERMISSION 100% FOR THE USE OF THE CUSTOMER		
CHECKED	✓					
DATE	14.04.01					

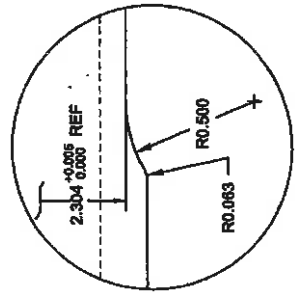
1 2 3 4 5 6 7 8



D212-884-141TRN
TURNING DETAIL



DETAIL E:
TAPER RUN OFF
NOT TO SCALE



DETAIL F:
CUFF TRANSITION
SCALE 10X

DETAIL D:
CROSTUBE CUFF
SCALE 6X

RELEASED
2014-05-26

DESIGN		DART AEROSPACE LTD
DRAWN		HARRISBURG, ONTARIO, CANADA
CHECKED	DJ	REV. E
MFG. APPR.		D212-884-141 SHEET 5 OF 5
DE APPR.		TITLE
DATE	14.04.01	XTUBE ASSY (205/212/412 HI FWD) NTS

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Entered: _____ Date: _____ **WORK ORDER NON-CONFORMANCE / ROUTE UPDATE**

Route update only

NCR No. _____

Job: _____

Part No. _____

DEPARTMENT/PROCESS

DISPOSITION

Rework ☐ ☐ ☐
Scrap ☐ ☐ ☐
Use-as-is ☐ ☐ ☐

Skid-tube ☐ ☐ ☐
Machining ☐ ☐ ☐
Large Fab ☐ ☐ ☐

Cross tube ☐ ☐ ☐
Small Fab ☐ ☐ ☐
Finishing ☐ ☐ ☐

Eng. (Non-AW) ☐ ☐ ☐
Prod. Eng. Coord. ☐ ☐ ☐
Rec/Store/Packaging ☐ ☐ ☐

Engineering ☐ ☐ ☐
Water Jet ☐ ☐ ☐
Supplier ☐ ☐ ☐
Quality ☐ ☐ ☐

MRB (QSI042)

Date : _____ Sequence #: _____

QTY Affected : _____

Disposition

Description Work Order Deviation

Completed By

Lead hand / Supervisor

QC / QA Coordinator

Root Cause

Operator ☐ ☐ ☐ ☐ ☐
Manufacturing Process ☐ ☐ ☐ ☐ ☐
Equip/Tooling ☐ ☐ ☐ ☐ ☐
Handling/Preservation ☐ ☐ ☐ ☐ ☐
Material ☐ ☐ ☐ ☐ ☐
Product Improvement ☐ ☐ ☐ ☐ ☐
Process Improvement ☐ ☐ ☐ ☐ ☐
Human Factors ☐ ☐ ☐ ☐ ☐

FAULT CATEGORY

Pressure/Forced ☐ ☐ ☐ ☐ ☐
Bending ☐ ☐ ☐ ☐ ☐
Crushing ☐ ☐ ☐ ☐ ☐
Cracks ☐ ☐ ☐ ☐ ☐
Crimp/Kink/Ripple/Wave/Twist ☐ ☐ ☐ ☐ ☐
Marks/Chatter ☐ ☐ ☐ ☐ ☐
Mislabeled ☐ ☐ ☐ ☐ ☐

Contamination ☐ ☐ ☐ ☐ ☐
Misaligned/off center ☐ ☐ ☐ ☐ ☐
BOM/Route ☐ ☐ ☐ ☐ ☐
Broken/Damage/Defect ☐ ☐ ☐ ☐ ☐
Incomplete/Unclear Instructions ☐ ☐ ☐ ☐ ☐
Drill Holes ☐ ☐ ☐ ☐ ☐
Fit/Function ☐ ☐ ☐ ☐ ☐

Power Loss/Surge ☐ ☐ ☐ ☐ ☐
Folio/Program ☐ ☐ ☐ ☐ ☐
Grain Direction ☐ ☐ ☐ ☐ ☐
Weld ☐ ☐ ☐ ☐ ☐
Wrong Stock Pulled ☐ ☐ ☐ ☐ ☐
Out of Sequence ☐ ☐ ☐ ☐ ☐
Off-set/Set-up ☐ ☐ ☐ ☐ ☐

Positioned Wrong ☐ ☐ ☐ ☐ ☐
Outside Tolerance ☐ ☐ ☐ ☐ ☐
Drawing ☐ ☐ ☐ ☐ ☐
Finish ☐ ☐ ☐ ☐ ☐
Part Lost/Missing ☐ ☐ ☐ ☐ ☐
Misread ☐ ☐ ☐ ☐ ☐

Other/Details:



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **POHB043846**



Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

Attention: Jenne, Heather

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB043846

PO Date: 6/26/19

Due Date: 6/26/19

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Phone:

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	195827	D4464-041	Fuel Tank Assembly : Various STC's ISSUE P/O LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	6/26/19	1 pcs	0 pcs	1 pcs	\$345.00/pcs	\$345.00
2	196220	D212-664-101	Fwd Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA- 316/2015 15/06/17 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	6/26/19	1 pcs	0 pcs	1 pcs	\$193.75/pcs	\$193.75
	196221		1 X JUN 27 2019	Firmed	-	6/26/19	1 pcs	0 pcs	1 pcs	\$193.75/pcs	\$193.75
	196362		1 X JUN 27 2019	Firmed	-	6/26/19	1 pcs	0 pcs	1 pcs	\$193.75/pcs	\$193.75
	196363		1 X JUN 27 2019	Firmed	-	6/26/19	1 pcs	0 pcs	1 pcs	\$193.75/pcs	\$193.75
Sub Total:							4	0	4		\$775.00

Grand Total: \$1,120.00



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043846



Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/26/19 3:21 PM Dart.Guerin.Kimberley

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

WO #: MWO40864

Customer: Dart Aerospace Ltd.

Dept: NDT YUL

Reference: POHB043846 ✓

Descr:

P/N:

S/N:

Qty: 1

Make:

Model:

Reg:

A/C S/N:

TSN:

CSN:

TSO:

Sequence: 1

Task: **UNSCHEDULED**

Work Required:

CARRY OUT NDT ON:

✓ 1 FUEL TANK ASSY, P/N: D4464-041, J/S: 195827 ✓

✓ 4 FWD CROSSTUBES, P/N: D212-664-101, J/S: 196220, 196221, 196362, 196363 ✓

Action Taken:	Date:	Initial/Stamp:				
LPI C/O IAW ASTM E-1417M-16	JUN 26 2019	 DOT-APP 20 53-89				
NO CRACK OR LEAK FOUND						
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923, DEV. MPO11715 UV LIGHT M-20142						
Description	Location	P/N	Qty	Batch	S/N Off	S/N On



345.00 tank

 $775 \div 4 = \$193.75$ **RECEIVED**

JUN 26 2019

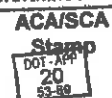
DART AEROSPACE LTD.

I certify that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:

Name:

RAFIK MELIKIAN



Date:

JUN 26 2019



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D212-664-101
Job Sheet 196363



Part No: D212-664-101

Job Qty: 1 pcs

Part Name: Fwd Crosstube - High



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/12/19

Job Tracking No:

Due Date: 7/12/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D212-664-141 REV E/ IIN-D212-664 REV.J IPP Rev:E 04.02.16 Reformat KJ/DS IPP Rev:F 06-03-29 Remove
Comments on Pick List JLM IPP Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 11.04.26 inspection strip ecn 11-
549 EC verf by:DD IPP REV:I 14.05.27 AS PER ECN 14-570 DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
120	Crosstubes - Bend - 1	1 pcs	7/12/19	7/12/19	0.50	1.00	Crosstubes - Bend	
130	QC 15	1 pcs	7/12/19	7/12/19	0.00	0.00	QC 15 - 12	
							QC 15 - 3	
							QC 15 - 47	
							QC 15 - 49	
							QC 15 - 58	
							QC 15 - 9	
							QC 15 - 68	
140	Crosstubes - 2 - B4B	1 pcs	7/12/19	7/12/19	0.00	1.00	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	
150	Crosstubes - 3 - B4B	1 pcs	7/12/19	7/12/19	0.00	0.50	Crosstubes - 1 - B4B	
							Crosstubes - 2 - B4B	
							Crosstubes - 3 - B4B	
							Crosstubes - 4 - B4B	
160	QC 7	1 pcs	7/12/19	7/12/19	0.00	0.00	QC 7 - 10	
							QC 7 - 13	
							QC 7 - 14	
							QC 7 - 15	
							QC 7 - 17	
							QC 7 - 18	
							QC 7 - 19	
							QC 7 - 2	
							QC 7 - 28	
							QC 7 - 3	
							QC 7 - 30	
							QC 7 - 34	
							QC 7 - 36	
							QC 7 - 37	

165 QC 5

1 pcs

7/12/19

0.00 0.00

QC 7 - 41

QC 7 - 47

QC 7 - 48

QC 7 - 51

QC 7 - 58

QC 7 - 59

QC 7 - 60

QC 7 - 9

QC 7 - 68

QC 7 - 50

QC 7 - 67

QC 7 - 40

QC 7 - 24

QC 7 - 43

QC 5 - 10

QC 5 - 12

QC 5 - 17

QC 5 - 18

QC 5 - 19

QC 5 - 22

QC 5 - 24

QC 5 - 3

QC 5 - 43

QC 5 - 49

QC 5 - 51

QC 5 - 58

QC 5 - 68

QC 5 - 9

QC 5 - 50

QC 5 - 30

QC 5 - 40

170 Outsource - 2 - NDT per
QSI038

1 pcs

7/12/19

SKY002-VC

180 Packaging 2-1 - Receive - B4B 1 pcs

7/12/19

0.00 0.00

Packaging 2 - 1 - B4B

Packaging 2 - 2 - B4B

Packaging 2 - 3 - B4B

Packaging 2 - 5 - B4B

Packaging 2 - 4 - B4B

Packaging 2 - 6 - B4B

Packaging 2 - 7 - B4B

Packaging 2 - 8 - B4B

Packaging 2 - 9 - B4B

Packaging 2 - 10 - B4B

Packaging 2 - 11 - B4B

Packaging 2 - 12 - B4B

Packaging 2 - 13 - B4B

Packaging 2 - 14 - B4B

Packaging 2 - 15 - B4B

Packaging 2 - 16 - B4B

Packaging 2 - 17 - B4B

Packaging 2 - 18 - B4B

Packaging 2 - 19 - B4B

Packaging 2 - 20 - B4B

Packaging 2 - 21 - B4B

Packaging 2 - 22 - B4B

Packaging 2 - 23 - B4B

Packaging 2 - 24 - B4B

Packaging 2 - 25 - B4B

Packaging 2 - 26 - B4B

				Packaging 2 - 27 - B4B	
				Packaging 2 - 28 - B4B	
				Packaging 2 - 29 - B4B	
				Packaging 2 - 30 - B4B	
				Packaging 2 - 31 - B4B	
				Packaging 2 - 32 - B4B	
				Packaging 2 - 33 - B4B	
				Packaging 2 - 34 - B4B	
				Packaging 2 - 35 - B4B	
				Packaging 2 - 36 - B4B	
190	QC 5-	1 pcs	7/12/19	0.00 0.00	QC 5 - 10
					QC 5 - 12
					QC 5 - 17
					QC 5 - 18
					QC 5 - 19
					QC 5 - 22
					QC 5 - 24
					QC 5 - 3
					QC 5 - 43
					QC 5 - 49
					QC 5 - 51
					QC 5 - 58
					QC 5 - 68
					QC 5 - 9
					QC 5 - 50
					QC 5 - 30
					QC 5 - 40
200	Spray Paint - 2 - B4B	1 pcs	7/12/19	0.00 0.25	Spray Paint - 1 - B4B
					Spray Paint - 2 - B4B
					Spray Paint - 3 - B4B
					Spray Paint - 4 - B4B
210	QC 14	1 pcs	7/12/19	0.00 0.00	QC 14 - 15
					QC 14 - 2
					QC 14 - 34
					QC 14 - 41
					QC 14 - 51
					QC 14 - 58
					QC 14 - 59
					QC 14 - 9
					QC 14 - 68
					QC 14 - 40
					QC 14 - 19
					QC 14 - 43
					QC 14 - 24
220	Crosstubes - 4 - B4B	1 pcs	7/12/19	0.00 1.69	Crosstubes - 1 - B4B
					Crosstubes - 2 - B4B
					Crosstubes - 3 - B4B
					Crosstubes - 4 - B4B
230	QC 5	1 pcs	7/12/19	0.00 0.00	QC 5 - 10
					QC 5 - 12
					QC 5 - 17
					QC 5 - 18
					QC 5 - 19
					QC 5 - 22
					QC 5 - 24
					QC 5 - 3
					QC 5 - 43
					QC 5 - 49
					QC 5 - 51

See Attached

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See Attached

					QC 5 - 58	
					QC 5 - 68	
					QC 5 - 9	
					QC 5 - 50	
					QC 5 - 30	
					QC 5 - 40	
240	Packaging 1-1 - Pick Kit - B4B	1 pcs	7/12/19	0.00 0.00	Packaging 1 - 1 - B4B	
					Packaging 1 - 2 - B4B	
					Packaging 1 - 3 - B4B	
					Packaging 1 - 4 - B4B	
					Packaging 1 - 5 - B4B	
					Packaging 1 - 6 - B4B	
					Packaging 1 - 7 - B4B	
					Packaging 1 - 8 - B4B	
					Packaging 1 - 9 - B4B	
					Packaging 1 - 10 - B4B	
					Packaging 1 - 11 - B4B	
					Packaging 1 - 12 - B4B	
					Packaging 1 - 13 - B4B	
					Packaging 1 - 14 - B4B	
					Packaging 1 - 15 - B4B	
					Packaging 1 - 16 - B4B	
					Packaging 1 - 17 - B4B	
					Packaging 1 - 18 - B4B	
					Packaging 1 - 19 - B4B	
					Packaging 1 - 20 - B4B	
					Packaging 1 - 21 - B4B	
					Packaging 1 - 22 - B4B	
					Packaging 1 - 23 - B4B	
					Packaging 1 - 24 - B4B	
					Packaging 1 - 25 - B4B	
					Packaging 1 - 26 - B4B	
					Packaging 1 - 27 - B4B	
					Packaging 1 - 28 - B4B	
					Packaging 1 - 29 - B4B	
					Packaging 1 - 30 - B4B	
					Packaging 1 - 31 - B4B	
					Packaging 1 - 32 - B4B	
					Packaging 1 - 33 - B4B	
					Packaging 1 - 34 - B4B	
					Packaging 1 - 35 - B4B	
					Packaging 1 - 36 - B4B	
242	Rework - 2 - B4B	1 pcs	7/12/19	0.00 0.00	Crosstubes - 1 - B4B	AD 19-7-11
245	Rework - 3 - B4B	1 pcs	7/12/19	0.00 0.00	Crosstubes - 1 - B4B	
247	Rework - 4 - B4B	1 pcs	7/12/19	0.00 0.00	Crosstubes - 1 - B4B	
250	QC 4	1 pcs	7/12/19	0.00 0.00	QC 4 - 28	
					QC 4 - 58	
					QC 4 - 69	
					QC 4 - 9	
					QC 4 - 46	
					QC 4 - 68	
					QC 4 - 72	
					QC 4 - 74	
260	Packaging 3-1 - Stock - B4B	1 pcs	7/12/19	0.00 0.00	Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Plex 7/11/19 2:28 PM dart.lacelle.linda	

Self
checked

RQ 19-7-11

				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
265 DC - 1 - B4B	1 pcs	7/12/19	0.00 0.00	DC - 1 - B4B	
				DC - 2 - B4B	
270 QC 21 - FG	1 pcs	7/12/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	
				QC 21 - FG - 53	

Part Op 120 - Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

Descriptions: 130 - (QC15- Crosstube Dimensional Check)

140 - "1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549,using drill table DT8577, set-up towers in hole #7 as per QSI 10 2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141"

150 - HandFinish5 (Crosstubes Chemical Conversion) ****IMMEDIATELY AFTER GRINDING***

160 - (QC7-Inspect Chemical Conversion Coat)

165 - QC5- Inspect part completeness to step on W/O)

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

180 - (Receive & Inspect for Damage & Mat'l Certs) Ensure copy of NDT results attached to work order.

190 - (QC5- Inspect part completeness to step on W/O) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D212-664-141

200 - (Spray Paint / NDT Room) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside & outside crosstube as per QSI 005 4.2 BATCH: _____ 2- After painting remove masking and apply matte clear coat per QSI005 4.2 3- MASK UNDERSIDE OF CROSSTUBE AS SHOWN ON DWG BEFORE PAINTING 4 -Paint Outside of Tube as per Dart QSI 005 4.2

210 - (QC14- Inspect Spray Paint) Then,Wrap in plastic bag to protect from scratches

220 - *****LAY DOWN CROSSTUBE ON TABLE AND PUT DT10302 PINS IN SADDLE HOLE FACING UP, USE HOLE IN TAPE MESURE TO PUT IN PINS FOR LOCATING CENTER OF CROSSTUBE. ***** 1- Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2- Install supports with Proseal 890 per D212-664-141 and QSI 015 A/R Proseal 890 Batch: _____ EXP: _____

PROSEAL CURE TIME 72 HOURS: Start: _____ Finish: _____ 3- Install clamps with rubber cushion (ENSURE CLAMPS ARE INSTALL ON TOP SIDE OF CROSSTUBE) using DT9565 as per Dwg D212-664-141. ***Torque all clamps to 80-100 IN-LBS.***

230 - (QC5- Inspect part completeness to step on W/O) ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

240 - (Pick Kit)

250 - QC4- 100% Inspect kits for completeness) ***VERIFY BY _____ BATCH # TO MATCH W/O

260 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP D212-664-101 Location : FG094

265 - Photocopy bluefile and create labels as per PPP D212-664-101 CHG006

270 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D212-664-101TRN	Crosstube Turning Detail	1 pcs (1 ea)	120-Crosstubes - Bend - 1	
D2893-1	Support	2 pcs (2 ea)	220-Crosstubes - 4 - B4B	
D3595-063-450	Rubber Cushion 0.63" Wide X 4.50" Long	4 pcs (4 ea)	220-Crosstubes - 4 - B4B	
MS21920-25	Clamp	4 Ea (4 ea)	220-Crosstubes - 4 - B4B	
AN6-35A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	
AN6-36A	Bolt	4 Ea (4 ea)	240-Packaging 1-1 - Pick Kit - B4B	
D3428-1	Placard	1 pcs (1 ea)	240-Packaging 1-1 - Pick Kit - B4B	
MS21042L6	Nut	6 Ea (6 ea)	240-Packaging 1-1 - Pick Kit - B4B	
NAS1149D0663J	Washer	18 Ea (18 ea)	240-Packaging 1-1 - Pick Kit - B4B	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
120-Crosstubes - Bend - 1	D212-664-101TRN	1	4	0
220-Crosstubes - 4 - B4B	D2893-1	2	1	0
	D3595-063-450	4	63	0
	MS21920-25	4	78	0
	AN6-35A	4	31	0
	AN6-36A	4	25	0
	D3428-1	1	16	0
	MS21042L6	6	291	0
	NAS1149D0663J	18	654	0

Part Specifications

Specifications could not be found.

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Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only ☐

NCR No.

Job:

1988 196363

Part No.

DZ12-654-101

DEPARTMENT/PROCESS

Skid-tube	Cross tube	Eng. (Non-AW)	Engineering
Machining	Small Fab	Prod. Eng. Coord.	Water Jet
Large Fab	Finishing	Rec/Store/Packaging	Supplier
			Quality

DISPOSITION

Rework	☒
Scrap	☐
Use-as-is	☐

MRB (QS1042)

QTY Affected:

1 tube, 2 supports

Sequence #:

241

Disposition

Description Work Order Deviation

Support was removed to allow test fit of new support design by Engineering.

Remove and re-machine inner bore of DZ853-1 Supports per DZ853-Rev.D. Re-install supports and repair finish as required per DZ12-654-141 Rev.E.

Scotch weld 5206877 exp 8/21 AB 18-11-3
10575-003460 - 5207457
1132920-25 - 5203212 (4)
Proseal 5207888 exp 6/20

Completed By

AB NOV 03 2019

Lead hand / Supervisor

BA 19-10-29

QC / QA Coordinator

PD 19-10-29

FAULT CATEGORY

Pressure/Forced	Contamination	Power Loss/Surge	Positioned Wrong
Bending	Misaligned/off center	Folio/Program	Outside Tolerance
Crushing	BOM/Route	Grain Direction	Drawing
Cracks	Broken/Damage/Defect	Weld	Finish
Crimp/Kink/Ripple/Wave/Twist	Incomplete/Unclear Instructions	Wrong Stock Pulled	Part Lost/Missing
Marks/Chatter	Drill Holes	Out of Sequence	Misread
Mislabeled	Fit/Function	Off-set/Set-up	

Root Cause

Operator	☐
Manufacturing Process	☐
Equip/Tooling	☐
Handling/Preservation	☐
Material	☐
Product Improvement	☒
Process Improvement	☐
Human Factors	☐

Other/Details:

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	QTY -101	QTY -201	QTY -203	Part Number	Description
	X			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		X		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			X	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21920-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21920-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21920-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

* REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE.

NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AAI SKIDTUBES.